Book Reviews

LES LOCALISATIONS FONCTIONNELLES DE LA CAPSULE INTERNE PAR JEAN ABADIE." Bordeaux. Imprimerie G. Gounouilhon, 1901.

The study of the finer anatomy and physiology of various portions of the internal capsule is far from being complete. The conclusions at which various writers arrived in their investigations in regard to the function of some parts of this important structure of the brain are so contradictory that any new contribution on the subject will always be of interest.

Dr. Jean Abadie's book is interesting and instructive from several standpoints. To make the subject clear he divided his work with good reason into five chapters. First of all he gives a complete historical review of the researches made in the domain of the internal capsule. We learn that Burdach (1819-26) was the first who created the name "internal capsule." The true scientific study of the subject begins with Türck (1853), but Charcot in 1872 was the first to give a detailed anatomical and physiological description of this region. It was Charcot who traced the boundary line between the pyramidal and sensory bundles in the internal capsule. A long series of writers follows. One after another investigated the function of various portions of the internal capsule and all arrived at the following subdivision: the anterior portion which is psychic, the middle which is motor, and the posterior which is sensory. Soon each of these localizations was subdivided and multiplied. Some of the last divisions proved to be incorrect and some doubtful.

In the anatomical portion of his work Abadie presents a criticism of the most important sections of the brain which give the best results for studying the internal capsule in all its aspects. They are those of Vicq d'Azyr, Pitres, Brissaud, Flechsig and Dejerine. The relative value of these sections are explicitly criticized: the advantageous and disadvantageous points are mentioned and discussed. Finally the author describes the classical anatomical division of various tracts of fibers which the internal capsule is composed of.

In the chapter on physiology the author refers to the various experiments relating to the function of the internal capsule, experiments which led to negative results until Fritsch and Hitzig in 1810 discovered the four motor centers of the cortex by means of the galvanic current. Ferrier in 1873 corroborated the existence of the cortical centers and first investigated the function of the capsular region; but under the last name he understood the white fibers, the thalamus and corpora striata. His experiments therefore did not have a direct bearing upon the capsule itself. It is only from 1877 that real work upon the physiology of the internal capsule was conducted; in France by François-Frank and Pitres, in England by Beevor and Horsley for motor function, and by Laborde, Lemoine, Sollier and Verger for sensory function. The motor portion is represented in two anterior thirds of the posterior segment of the capsule. The anterior half of it as well as the basal ganglia are not excitable. As to the sensory portion of the capsule it is only since the work of Sollier and Verger in 1898 that real conclusive experiments were conducted. Others before them speak of sensory disturbances only in regard to cortical lesions. The last two observers prove conclusively that a lesion of the excitable portion of the internal capsule (median and posterior segments) causes an incomplete motor as well as a sensory paralysis of the opposite side of the body.

In the fourth chapter Abadie considers separately the various tracts of the internal capsule: he gives a critical review of experiments and observations made upon the pyramidal tract, the fibers coming from the knee of the capsule, the anterior portion of the capsule and finally upon the sensory portion, the existence of which is now so much disputed. As to the bundle causing hemichorea the author shows that any portion of the pyramidal tract can produce this symptom. The capsular bundle for aphasia he does not accept, but believes in dysarthria which, however, may be due to a lesion in the anterior portion of the capsule. In Chapter V the author relates 22 cases, the pathological findings of which he discusses in detail. The most interesting statement made by him is that he could not find a single case of disturbance of general sensation and special senses with a lesion strictly limited to the internal capsule.

In regard to association of motor and sensory paralysis he reports cases in which other portions were affected except the posterior third, also cases with total hemianesthesia of the Türck-Charcot type, while the lesion was at the apex of the lenticular nucleus.

In conclusion the author expresses a doubt in regard to the function of some portions of the internal capsule, but speaks with emphasis of the constant association of motor and sensory paralysis. According to him there is no distinct bundle in the internal capsule, a lesion of which would cause hemianesthesia without an accompanying motor paralysis.

The book is very useful for its impartial and clear exposé of different views held by prominent neurologists upon one of the most important subjects of cerebral physiology. ALFRED GORDON.